

CLAIMS

What is claimed is:

- 1 1. Device for contacting and/or modifying a surface having a cantilever connected to
2 an almost plane carrier element staying apart from said surface, said cantilever
3 having a tip at its loose end being in close contact to said surface, wherein said
4 cantilever stands out of the plane of said carrier element.

- 1 2. Device according to claim 1, wherein said cantilever is bent along its direction.

- 1 3. Device according to claim 1, wherein said cantilever is at least partially attached
2 with additional material, said additional material having a thermal expansion
3 coefficient c_1 , which is different than the thermal expansion coefficient c_2 of the
4 material of which said cantilever is made.

- 1 4. Device according to claim 3, wherein said additional material causes a defined
2 stress moment acting onto said cantilever being bent through it out of the plane of
3 said carrier element.

- 1 5. Device according to claim 3, wherein said cantilever provides a base section
2 which is fixed to said carrier element, onto said base section said additional

3 material is attached and extending into areas of said cantilever not being
4 supported by said carrier element

1 6. Device according to claim 3, wherein said cantilever is made of silicon and said
2 additional material is of silicon nitride.

1 7. Device according to claim 3, wherein said additional material is attached directly
2 onto said cantilever as a layer defined by thickness and length.

1 8. Device according to claim 1, wherein the cantilever is made of a material or a
2 material composition providing an intrinsic stress make the cantilever bending out
3 of said plane.

1 9. Device according to claim 8, wherein said intrinsic stress is provided by a thermal
2 treatment of said cantilever.

1 10. Device according to claim 8, wherein said intrinsic stress is provided by
2 implantation in the cantilever.

1 11. Device according to claim 1, wherein said tip is directed approximately
2 perpendicular towards said cantilever and protruding the surface of said
3 cantilever.

- 1 12. Device according to claim 1, wherein said tip is provided on a side of said
2 cantilever being turned away from said surface and said cantilever being bent
3 along its direction about approximately 180° so that said tip is in contact with said
4 surface.
- 1 13. Device according to claim 1, wherein said tip and the direction of said cantilever
2 enclose an angle between 0° and 90°.
- 1 14. Device according to claim 13, wherein said cantilever is bent along its direction
2 about 90° maximally.
- 1 15. Device according claim 1, wherein said tip is of the same or different material as
2 that of the cantilever.
- 1 16. Device according to claim 1, wherein said tip does not tower above the plane of
2 said cantilever and is connected in one piece with said cantilever.
- 1 17. Device according to claim 1, wherein said surface is a storage media, like a thin
2 polymer film, into which thermomechanical writing and thermal readout of binary
3 information takes place by said tip.
- 1 18. Device according to claim 1, wherein said surface is a surface onto which
2 lithographic and imaging techniques are applicable using said tip.

- 1 19. Device according to claim 1, wherein said surface is of a nature which is
- 2 modifiable by said tip.